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10/801,481

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Christopher R. Doerr

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EXAMINER

LIN, PHYOWAI

ART UNIT

PAPER NUMBER

2613

MAIL DATE

DELIVERY MODE

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/801,481

Applicant(s)

DOERR ET AL.

Examiner

PHYOWAI LIN

Art Unit

2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 6, 15-17 and 29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 6, 15-17 and 29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_.

### DETAILED ACTION

1. The indicated allowability of **claims 5, 6 and 16** are withdrawn in view of the newly discovered reference(s) to Naganuma (US Patent Number 6456380). Rejections based on the newly cited reference(s) follow.

#### *Claim Objections*

2. **Claims 6,15,16,17 and 29** are objected because the orders of the amended claims were not in proper way to amend the claim. Examiner suggests that independent claim should come in first order position and dependent claim should be in second order position when number the amended claims.

#### *Claim Rejections - 35 USC § 112*

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

4. **Claims 29 and 6** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

**Claim 29** recites the limitation "one of the second portion of the optical data pulse or the second portion of the optical data pulse". This limitation repeats itself and hence is vague and indefinite. Examiner suggests that one of the second portion of the optical data pulse should be the second portion of the sampling pulse as disclosed in specification page 15, lines 21-23.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claims 15 and 16** are rejected under 35 U.S.C. 103(a) as being unpatentable over Taylor (US Pub Number 20040114939) in view of Naganuma (US Patent Number 6456380).

**Regarding to claim 16**, Taylor discloses an optical sampling system (see FIG.3A), comprising:

a data input configured to receive a test signal (see paragraph [0050], lines 5-7 and FIG.3A where in the sampling receiver 50 receives the optical data pulse (test signal) from incoming signal);

a sampling pulse input configured to receive a sampling pulse (see paragraph [0050], lines 5-7 and FIG.3A where in the sampling receiver 50 receives optical sampling pulse from local oscillator);

an optical system configured to produce a first combination of the data input and the sampling pulse and a second combination of the data input and the sampling pulse, wherein the first combination is associated with a first phase difference and the second combination is associated with a second phase difference (see paragraph [0050], lines 11-15 and FIG.3A where in from 90 degree hybrid portion, the first combination (upper

part of hybrid) of optical data pulse and optical sampling pulse and the second combination (lower part of hybrid) of optical data pulse and optical sampling are splitted and both first and second path are associated with 90 degree phase differences);

a first balanced detector (photodetector 64) and a second balanced detector (photodetector 62) configured to receive the first combination and the second combination, respectively, and produce a first balanced signal and a second balanced signal, respectively (see FIG.3A where in first combination of incoming signal and sampling signal couple into photodetector 64 and obtain the first electrical signal and second combination of incoming signal and sampling signal couple into photodetector 62 and obtain the second electrical signal);

a signal processing system configured to combine the first balanced signal and the second balanced signal; and (see paragraph [0032], lines 12-16; [0157], lines 2-3 and FIG.3A where in DSP circuit combines both first and second balanced electrical signal and doing the function of signal processing)

Even though Taylor discloses receiving test signal from incoming signal, receiving sampling pulse from local oscillator, first balance detector and second balance detector with first and second balanced signal, he fails to specifically disclose a retardation plate configured to establish at least one of the first phase difference and the second phase difference.

Naganuma discloses a retardation plate (quarter-wave-plate) are aligned with the polarization of the local oscillator light and rotating the wave plate in its plane by an amount of 90 degree will provide the phase shift (examiner considers for first phase

difference as claim can be read as at least one of the limitations, both "the first phase difference" and "the second phase difference" are not required, only one is required) (see column 18, lines 28-37).

Therefore, it would have been obvious to a person of ordinary skill in the art at the same time the invention was made to modify Taylor's invention as to use a retardation wave plate in one of the local oscillator light signal paths with first phase difference in optical sampling system because it would allow the optical sampling system achieving less interference noise at the output balanced detector in order to make reliable and improving sampling system.

**Regarding to claim 15**, Taylor and Naganuma disclose everything claimed as applied above (see claim 16). In addition, Taylor disclose the optical sampling system further includes: an optical modulator (extra phase shift) configured to establish the second phase difference (see paragraph [0050], lines 19-20 and FIG.3A where in extra phase shift does the phase difference of second path).

7. **Claims 17** is rejected under 35 U.S.C. 103(a) as being unpatentable over Taylor (US Pub Number 20040114939) in view of Naganuma (US Patent Number 6456380) as applied to claim 16, respectively, above and further in view of Choudhary et al. (US Pub Number 2004/0208646).

**Regarding to claim 17**, Taylor and Naganuma disclose everything claimed as applied above (see claim 16). However, they fail to specifically disclose the first balanced detector with first phase difference has an in-phase signal and the second balanced detector with second phase difference has a quadrature signal.

Choudhary et al. disclose wherein a difference between the first phase difference and the second phase difference is such that the balanced signal associated with the first phase difference is an in-phase signal and the balanced signal associated with the second phase difference is a quadrature signal (see paragraph [0052] and FIG.7).

Therefore, it would have been obvious to a person of ordinary skill in the art at the same time the invention was made to modify Taylor's invention as having first balanced detector with first phase difference has an in-phase signal and the second balanced detector with second phase difference has a quadrature signal in optical sampling system because it would allow the optical sampling system leading to eliminate crosstalk between the in-phase output signal and quadrature output signal for making reliable and improving optical sampling system.

### ***Conclusion***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to PHYOWAI LIN whose telephone number is (571) 270-1659. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Vanderpuye can be reached on (571) 272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PWL

01/18/08

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KENNETH VANDERPUYE  
SUPERVISORY PATENT EXAMINER